Space Weather Forecast

Issued on Friday, 11 August 2023 at 13:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Moderate class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low activity observed with eight sunspot regions. Peak flare was a common class flare at 11/0645 UTC from over the northeast limb, however a number of similar sized flares have also been observed from a sunspot region in the northwest. This is a moderate sized sunspot with ongoing growth observed, leading to a complex magnetic field. There are two other regions of interest. The first us in the southwest which is dominated by a single large central spot, but with a number of smaller peripheral spots around it, however it remains a stable and inactive region. The second is in the north-centre disc, and has seen some slight growth, but remains a small and simple region. There are no Earth-directed CMEs (coronal mass ejections).

Solar Wind / Geomagnetic Activity: Solar winds rose from background at below 400km/s to be slightly elevated, between 400-500km/s. The total Interplanetary Magnetic Field (IMF), was mostly at weak levels, but rose after 10/1606 UTC to briefly reach moderate levels, before easing to be mainly weak from 10/2130 UTC. The north-south component was initially weakly negative (southward), but then mainly positive (northward) from 10/1600 UTC. Quiet (Kp 1-2) geomagnetic conditions throughout.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) continued to ease after recent enhancements from the 07 Aug Strong flare. This remained above background, but below the S1 Minor Radiation Storm level.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate expected, with a chance of isolated Moderate flares. The main risk is from the developing region in the northwest.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs, with the next notable coronal hole enhancement not expected until either late day 4, or more likely beyond this forecast period, on day 5 (14-15 Aug). Geomagnetic activity is forecast to be mainly Quiet with a chance of isolated Unsettled spells.

Energetic Particles / Solar Radiation: The count rate of energetic particles is expected to continue easing erratically to background, with only a very slight chance of further enhancements given any large flares from the sunspots on the disc.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	55	55	50	50
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	Yes	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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